XI. Safety

Background

SAFETEA-LU legislation has outlined eight federal planning factors. While Safety was previously placed with security as a planning factor, right now it has been identified as a planning factor on its own (23 CFR 450.306). Although there have been traffic related safety improvements and while the rates of fatalities and injuries have typically declined at the national level in recent years, in 2005 the rate increased. Therefore, there are still improvements to be achieved at the AMPA and local level.

The 2004 New Mexico traffic fatality rate per 100 million vehicle miles of travel (VMT) was 2.22. This rate is among the highest in the nation. The national fatality rate was approximately 1.5 for the same year. In 2004, New Mexico records show 17,480 traffic related injuries and 440 fatalities (26.9 fatalities per 100,000 populations). The national fatality rate per 100,000 populations was 14.6. In addition, the pedestrian fatality rate (fatalities per 100,000 populations) for New Mexico is still one of the top five in the nation. New Mexico led the nation in total crashes as well as crash rates (per 100,000 people) for the past ten years.

Traffic safety issues in the AMPA need to focus on the identification of high risk areas and corridors and develop projects and programs that improve safety. The assessment needs to integrate behavioral factors and environmental exposure considerations.

To address the magnitude of the traffic safety concerns and respond to the FHWA and NMDOT for safety related strategies, a coordinated approach that aims at education, enforcement, and coordination with public safety agencies and other regional stakeholders needs to be identified. Another integral part of traffic safety should include, but not be limited to, intersection design, signal timing, improved lighting to enhance visibility, truncated domes for blind pedestrians, and refuge islands on medians. Education is another strategy that could help in addressing the traffic safety problem in the AMPA.

With the approval of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act-A Legacy for Users (SAFETEA-LU) in 2005, state and local departments of transportation and metropolitan planning organizations (MPOs) are required to consider safety as a stand-alone planning factor.

The New Mexico Department of Transportation (NMDOT) is required to develop a Strategic Highway Safety Plan (SHSP) as required by article 23 U.S.C 148 in partnership with the MPOs, transit operators, and other local and private sector safety stakeholders.

The NMDOT has developed the Comprehensive Transportation Safety Plan (CTSP) to fulfill this requirement. This plan intends to:

- **"Establish safety-related goals, objectives, and performance measures relevant to all modes of transportation, including highways, transit, bicycle and pedestrian, and commercial vehicles;**
- **Address issues at all levels of jurisdiction with specific attention to local and tribal entities with responsibility for prevention and enforcement;**

- **Identify candidate safety action plans and evaluate their potential benefits, costs, and ability to attain defined performance objectives;**
- **Establish a mechanism for interagency coordination with respect to safety issues and develop the necessary partnership agreements;**
- **Carry out a program of public outreach and education in support of the Comprehensive Transportation Safety Plan;**
- **Provide a strategic implementation plan, including action items which can be incorporated into state, local, and tribal governments plans and programs; and**
- **Establish a process for evaluating progress towards the CTSP's goals and objectives and updating the plan to reflect progress or changing needs."**

The overall goal established in the New Mexico CTSP is to reduce the state fatality rate by 20 percent by the year 2010. This means achieving a rate of 1.67 fatalities per 100 million VMT by 2010. This is a goal that the AMPA can work on achieving as part of a regional safety strategy. There are multi-agency and jurisdictional efforts in the region with the focus of developing safety strategies in which the participation of the MPO is important. Some of these initiatives relate to areas of safety education, training, engineering, and enforcement initiatives.

Issues

Issues associated with incorporating safety in the long range transportation plan include but are not limited to:

- Identifying regional safety needs and local "hot spot" problems;
- Coordinated and collaborated efforts with regional stakeholders working on safety;
- A continuous multi-agency coordination and communication on safety;
- Improving safety related methodologies and tools for assessing and predicting potential safety impacts;
- Disseminating real-time incident information to motorists;
- Implementing design factors in new infrastructure that enhance the safety and extend the life of structures, minimizing construction zone periods;
- Improving connectivity of the transportation system, across and between modes, for people and goods at modal transfer points, bikeways that share and cross the roadways, intersections with crosswalks, and railroad crossings;
- Improving the accessibility and safety of transit stops and transfer points, and implementing ITS technologies on transit and emergency vehicles;
- Exploring and identifying financial resources to fund safety projects and programs.

Building partnerships with safety stakeholders is important in the following areas:

- Developing and implementing short term strategies that enhance the safety for all users of the transportation system;
- Ensuring cooperation and coordination among all agencies in incident management and emergency situations;
- Creating policies and designing practices that are consistent with an efficient and safe intermodal transportation network;
- Developing an information system for crash data by compiling, consolidating, analyzing , and accessing;

- Establishing a long term vision that enhances the safety of all AMPA residents.

Comprehensive safety planning helps to prevent crashes and unsafe conditions. This requires not only strategies such as educational and behavioral (driver behavior initiatives and strategies) programs but also safety as a function of exposure. The ability to minimize exposure (via an efficient intermodal transportation system), or minimizing risk (via functional network), and reduce consequences (via efficient emergency management system) will provide a more complete approach in the long term. In considering these techniques/strategies of reducing, modifying and restricting exposure, a balance needs to be achieved so a change in one component of the transportation system does not impose safety problems to another component.

Current Conditions

According to the Division of Government Research of the University of New Mexico crash database, nearly 68,980 traffic related crashes occurred during 2001 to 2004 of which 36% resulted in injuries, 3.6 resulted in fatalities and the rest resulted in property damage (table 1). Tables 2 and 3 identify am peak period (6:00 through 9:00) and pm peak period (3:00 through 7:00) crash data by severity with higher fatality numbers occurring during the pm peak period.

Table XI-1

crash Data By Severity for AMPA

	2001	2002	2003	2004	2001-2004
Fatalities	73	69	46	60	248
Injuries	6707	6024	5733	6164	24628
Property Damages	11507	10841	10114	11642	44104
Total	18287	16934	15893	17866	68980

Table XI-2

AM Peak Period Crash Data by Severity for AMPA

	2001	2002	2003	2004	2001-2004
Fatalities	4	11	9	5	29
Injuries	818	731	752	846	3147
Property Damages	1530	1476	1322	1621	5949
Total	2352	2218	2083	2472	9125

Table XI-3

PM Peak Period Crash Data by Severity for AMPA

	2001	2002	2003	2004	2001-2004
Fatalities	19	10	4	10	43
Injuries	2284	2009	1916	2022	8231
Property Damages	3659	3481	3314	3927	14381
Total	5962	5500	5234	5959	22655

Map 1 identifies the intersections with the 20 highest crash rates per million vehicles. Crash rates were calculated by dividing the number of crashes at an intersection by the number of vehicles using the intersection. Because the number of vehicles is very large, the crash rates are expressed as crashes per million vehicles passing through an intersection. Intersections with high crash rates are mainly concentrated along Coors Blvd., Old Coors Rd., Montgomery Blvd. and west Central

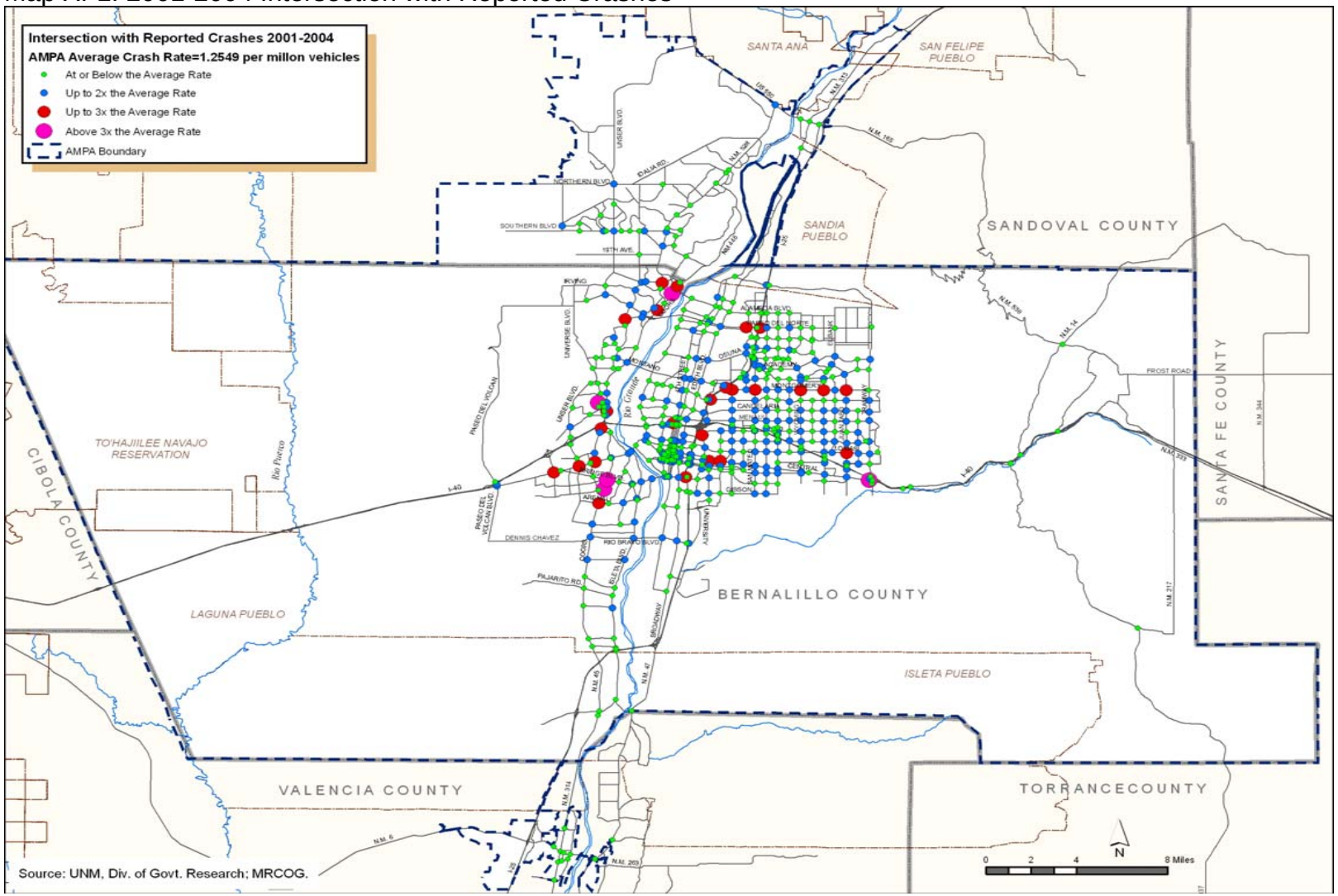
Usually, the focus has been on intersections with the highest number of crashes during a year. However, that is only one method to measure how dangerous the intersections are. To assess the risk of crashes, it is advisable to consider also the amount of traffic passing through the intersection.

Table 4 offers a comparison of crash rates and total number of crashes for the top 20 dangerous intersections in the AMPA. Based on this information, the intersection of Montgomery Blvd. and Wyoming Blvd. has the highest number of crashes, but when traffic volumes are taken into account, that intersection falls into 5th place, and first place goes to Seven Bar Loop Rd., and Coors Blvd.

Table XI-4

Top 20 locations ranked by crash rates		Crash Rate 2001-2004	Total Crashes 2001-2004
Seven Bar Loop Rd.	Coors Blvd.	6.61	279
Central Avenue	Tramway Blvd.	4.75	193
Sage Rd.	Old Coors Rd.	4.46	88
Bridge Blvd.	Old Coors Rd.	4.04	165
Sequoia Rd.	Ladera Dr.	3.77	45
Ellison Dr.	Coors Blvd. Bypass	3.71	342
Paseo del Norte	Jefferson St.	3.66	413
Montgomery Blvd.	Wyoming Blvd.	3.55	468
Paseo del Norte	Golf Course Dr.	3.46	189
Central Ave.	Yale Blvd.	3.43	188
Irving Blvd.	Coors Blvd.	3.43	373
Central Ave.	Coors Blvd.	3.41	280
Arenal Rd.	Coors Blvd.	3.40	160
Montgomery Blvd.	Carlisle Blvd.	3.36	304
Montgomery Blvd.	Pan American East	3.32	274
Montgomery Blvd.	San Mateo Blvd.	3.31	439
I-40 N Frontage Rd.	6th Street	3.28	94
Central Ave.	98th Street	3.05	120
NM 528/Alameda Blvd.	Corrales Rd.	2.99	244
Comanche Rd.	Pan American East	2.99	164

Map XI-1: 2001-2004 Intersection with Reported Crashes

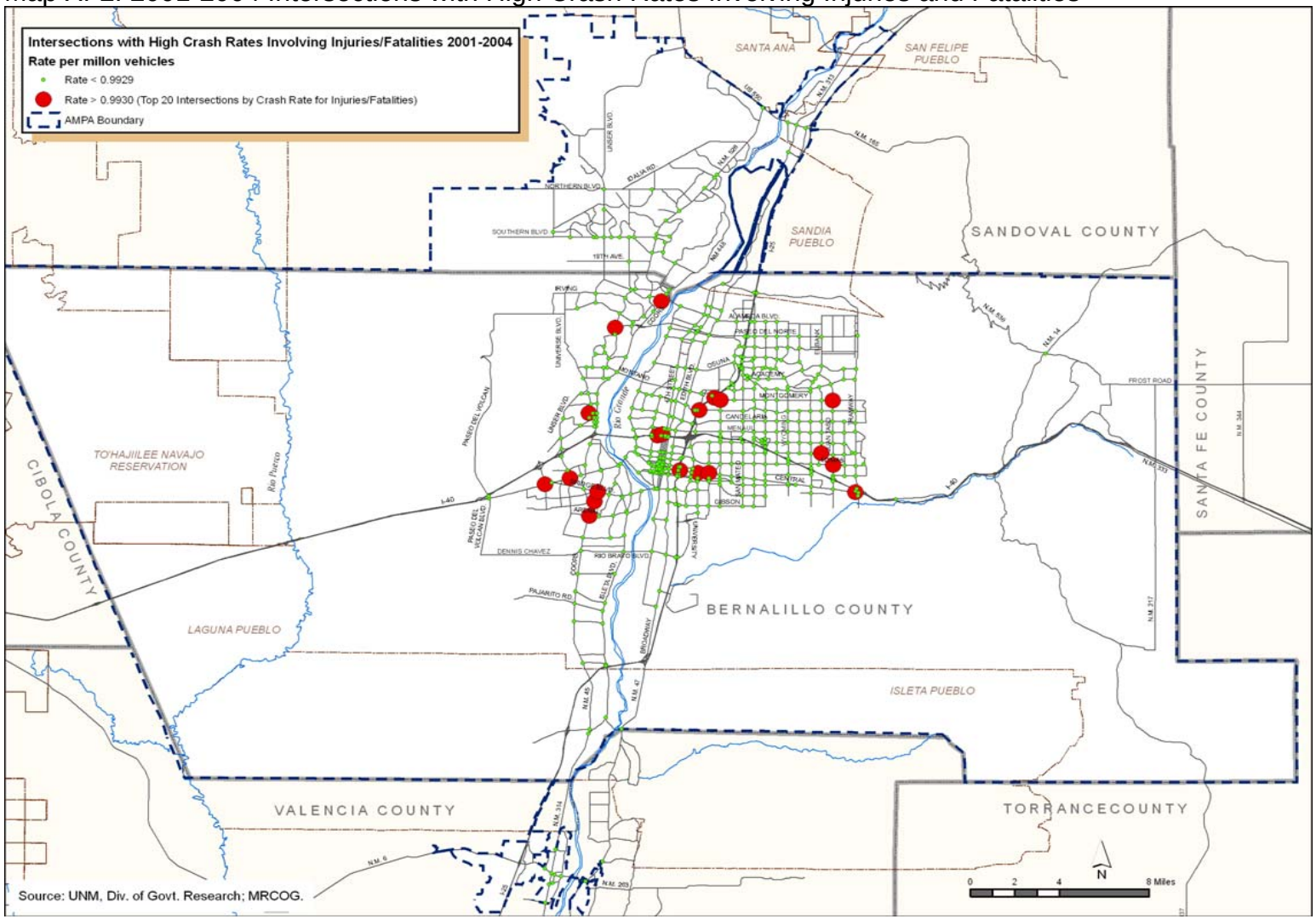


Map2 Identifies intersections with the 20 highest fatality and injury crash rates per million vehicles. Intersections with high injury and fatality rates are mostly concentrated along Old Coors Rd., Central Ave, Montgomery Blvd. and Eubank Blvd. Table 5 provides crash injury and fatality rates as well as total number of crashes.

Table XI-5

Top 20 locations ranked by injuries & fatal crashes rates		**Crash Rate 2001-2004**	**Total Cashes 2001-2004**
Seven Bar Loop Rd.	Coors Blvd.	2.16	91
Sage Rd.	Old Coors Rd.	1.77	35
Sequoia Rd.	Ladera Dr.	1.76	21
Bridge Blvd.	Old Coors Rd.	1.61	66
Central Ave.	Tramway Blvd.	1.5	61
Central Ave.	Unser Blvd.	1.39	61
Central Ave.	98th St.	1.37	54
I-40 Frontage Rd.	I-40 Off Ramp	1.27	14
Montgomery Blvd.	Pan American East	1.2	99
Central Ave.	I-25 East Frontage Rd.	1.19	54
Central Ave.	Yale Blvd.	1.11	61
Comanche Rd.	Pan American East	1.11	61
Paseo Del Norte	Golf Course Dr.	1.1	60
Arenal Rd.	Coors Blvd.	1.08	51
I-40 N Frontage Rd.	6th Street	1.08	31
Central Ave.	Girard Blvd.	1.07	68
Montgomery Blvd.	Carlisle Blvd.	1.05	95
Montgomery Blvd.	Juan Tabo Blvd.	1.03	84
Constitution Ave.	Morris St.	1.01	18
Lomas Blvd.	Juan Tabo Blvd.	0.99	91

Map XI-2: 2001-2004 Intersections with High Crash Rates Involving Injuries and Fatalities



Bicycle Safety

Safety is one of the most important considerations for travel and the transportation system performance. Safety needs to be integrated into all phases of transportation planning, design, construction, maintenance, and operation.

Crash information is an important reference to assess transportation safety. Bicycle crash data can be studied by the frequency in which a crash occurs at any location and by reviewing crash information over time. Another way is to look at the crash data in relation to the level of motorized activity at any location (crash rate). Table 2 shows information for the top ten locations in the Albuquerque Metropolitan Planning area by the number of bicycle crashes as well as by bicycle crash rates.

According to the Division of Government Research of the University of New Mexico crash database, approximately 514 bicycle crashes occurred during 2001 to 2004 (Table 6). The average rate for the AMPA was 0.33 per million vehicles for the period of 2001-2004. August and July are the months in which bike crashes occurred with the most frequency during the study period (Graph 1). On average, approximately 83.1% of the bike crashes included personal injury and about 38.5% of them occurred during the PM peak period. The Start of the pm peak period assures the inclusion for the end of school day period.

Table XI-6

Bike Crash Data By Severity for AMPA

	2001	2002	2003	2004	2001-2004
Fatalities	3	3	0	1	7
Injuries	115	108	68	136	427
Property Damages	16	22	15	27	80
Total	134	133	83	164	514

Graph XI-1

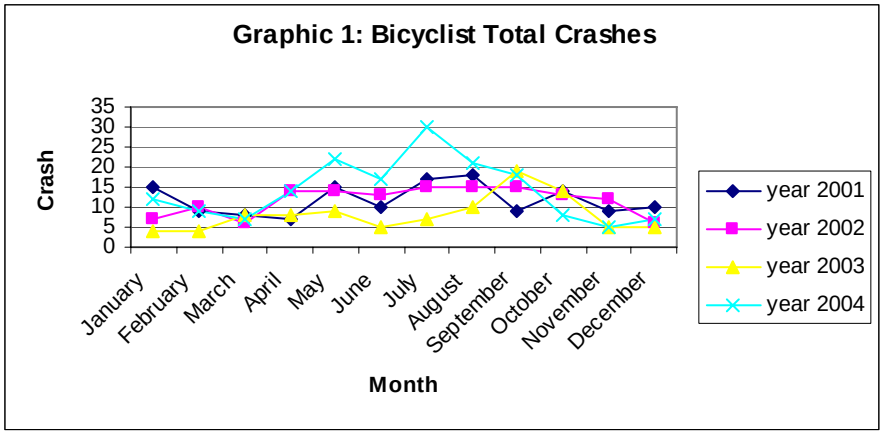


Table XI-7

AM Bike Crash Data By Severity for AMPA

	2001	2002	2003	2004	2001-2004
Fatalities	0	0	0	0	0
Injuries	14	16	12	24	66
Property Damages	4	5	2	3	14
Total	18	21	14	27	80

Table XI-8

PM Bike Crash Data By Severity for AMPA

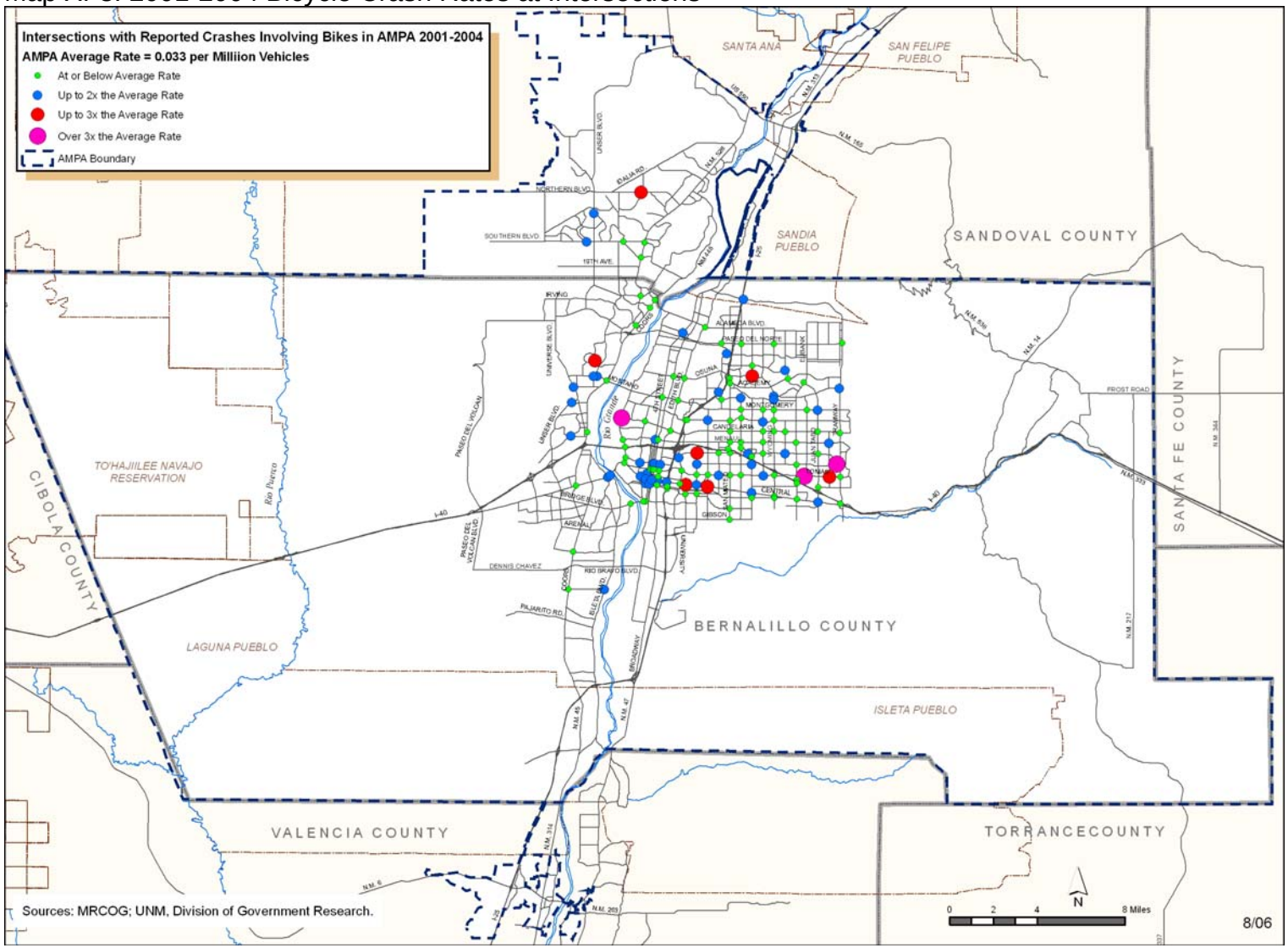
	2001	2002	2003	2004	2001-2004
Fatalities	1	1	0	0	2
Injuries	48	49	28	46	171
Property Damages	4	8	4	9	25
Total	53	58	32	55	198

Bicycle crashes concentrate along Central Ave. but are clustered in areas where the analysis is based on crash rates (bicycle crashes per million vehicles). Map 3 shows crash rates at various intersections for the metropolitan planning area. Areas with high crash rates are around UNM campus, downtown Albuquerque, and the area surrounded by Lomas Blvd., Indian School, Juan Tabo, and Tramway.

Table XI-9: Bike Crash Data for the AMPA 2001-2004

Top 10 Location (rank by number of crashes)	Bike Crashes	Top 10 Location (rank by crash rate)	Bike Crash Rates
Lomas Blvd. - Morris	5	Indian School – Constitution	0.1383
Central Blvd. - Girard	4	Lomas Blvd. – Morris	0.1146
Central Blvd. – Louisiana Blvd.	4	Candelaria – Rio Grande Blvd.	0.1108
Central Blvd. – Yale	4	Lomas Blvd. – Chelwood Park	0.0965
Lomas Blvd. – Tennessee	4	Homestead Circle – Taylor Ranch	0.0913
Central Blvd. – Carlisle	4	Burlison Dr. – Louisiana Blvd.	0.0894
Central Blvd. – Stanford	4	Gold Ave. – 3rd St.	0.0739
Central Blvd. – Juan Tabo	3	Central Ave. – Yale Blvd.	0.0731
Central Blvd. – Atrisco	3	Gold Ave. – 5th St.	0.0706
Central Blvd. – Broadway Blvd.	3	Central Ave. – Carlisle Blvd.	0.0696

Map XI-3: 2001-2004 Bicycle Crash Rates at Intersections



Pedestrian Safety

Safety is one of the most important considerations for travel and the transportation system performance. Safety needs to be integrated into all phases of transportation planning, design, construction, maintenance, and operation.

Crash information is an important reference to assess transportation safety. Pedestrian crash data can be studied by the frequency in which a crash occurs at any location and by reviewing crash information over time. Another way is to look at the crash data in relation to the level of motorized activity at any location (crash rate). Table 2 shows information of the top ten locations in the Albuquerque Metropolitan Planning area by the number of pedestrian crashes as well as by pedestrian crash rates.

A study of Albuquerque's pedestrian crashes by the University Of New Mexico Department Of Emergency Medicine for the period 1991 to 2001 found: [1]

- The Albuquerque pedestrian fatality rate was 3.03 deaths per 100,000 people.
- Pedestrian crashes involved adults in approximately 57%, elderly 8%, and children less than 18 year of age 35%.
- Most pedestrian crashes involved males 66%.
- Alcohol is a contributing factor on the part of pedestrian 28%, driver 18%, or both 8%.
- For most pedestrian crashes, the fault is undetermined (83%), motorist (16%), or pedestrian (1%).
- Most pedestrian crashes occurred on residential streets 45%, non intersection areas 27%, major intersections 25%, and interstate (I-40 and I-25) 3%.

According to the Division of Government Research of the University of New Mexico crash database, approximately 679 pedestrian crashes were recorded during 2001 to 2004 (Table 10). The average crash rate for the AMPA was 0.036 per million vehicles for the 2001-2004. August, November and January are months in which pedestrian crashes occurred with frequency during the study period (graphic 2). On average, approximately 82.3% of the pedestrian crashes included personal injury and about 29.2% of them occurred during the PM peak period.

Table XI-10

Pedestrian Crash Data By Severity for AMPA

	2001	2002	2003	2004	2001-2004
Fatalities	25	15	16	10	66
Injuries	166	127	117	149	559
Property Damages	13	17	11	13	54
Total	204	159	144	172	679

[1] Albuquerque Pedestrian Crash Report. The University of New Mexico, Department of Emergency Medicine, Center for Injury Prevention, Research, and Education.

Graph XI-2

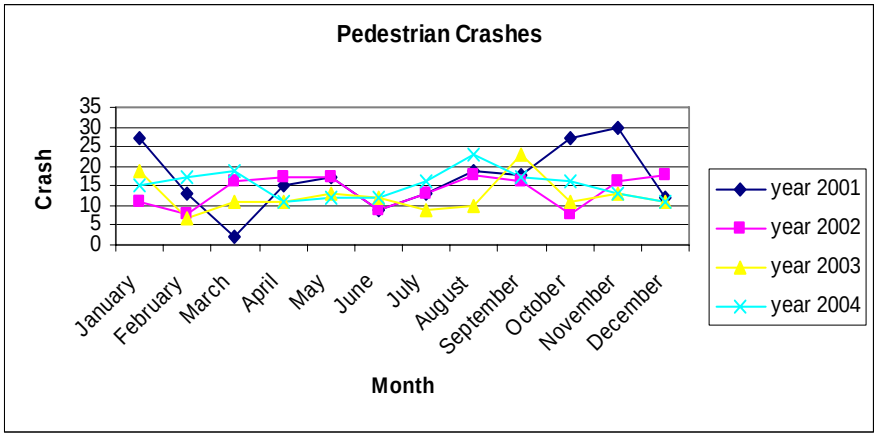


Table XI-11

AM Pedestrian Crash Data By Severity for AMPA

	2001	2002	2003	2004	2001-2004
Fatalities	2	1	4	0	7
Injuries	19	16	17	12	64
Property Damages	2	0	1	4	7
Total	23	17	22	16	78

Table XI-12

PM Pedestrian Crash Data By Severity for AMPA

	2001	2002	2003	2004	2001-2004
Fatalities	1	2	2	3	8
Injuries	46	39	36	55	176
Property Damages	1	4	6	3	14
Total	48	45	44	61	198

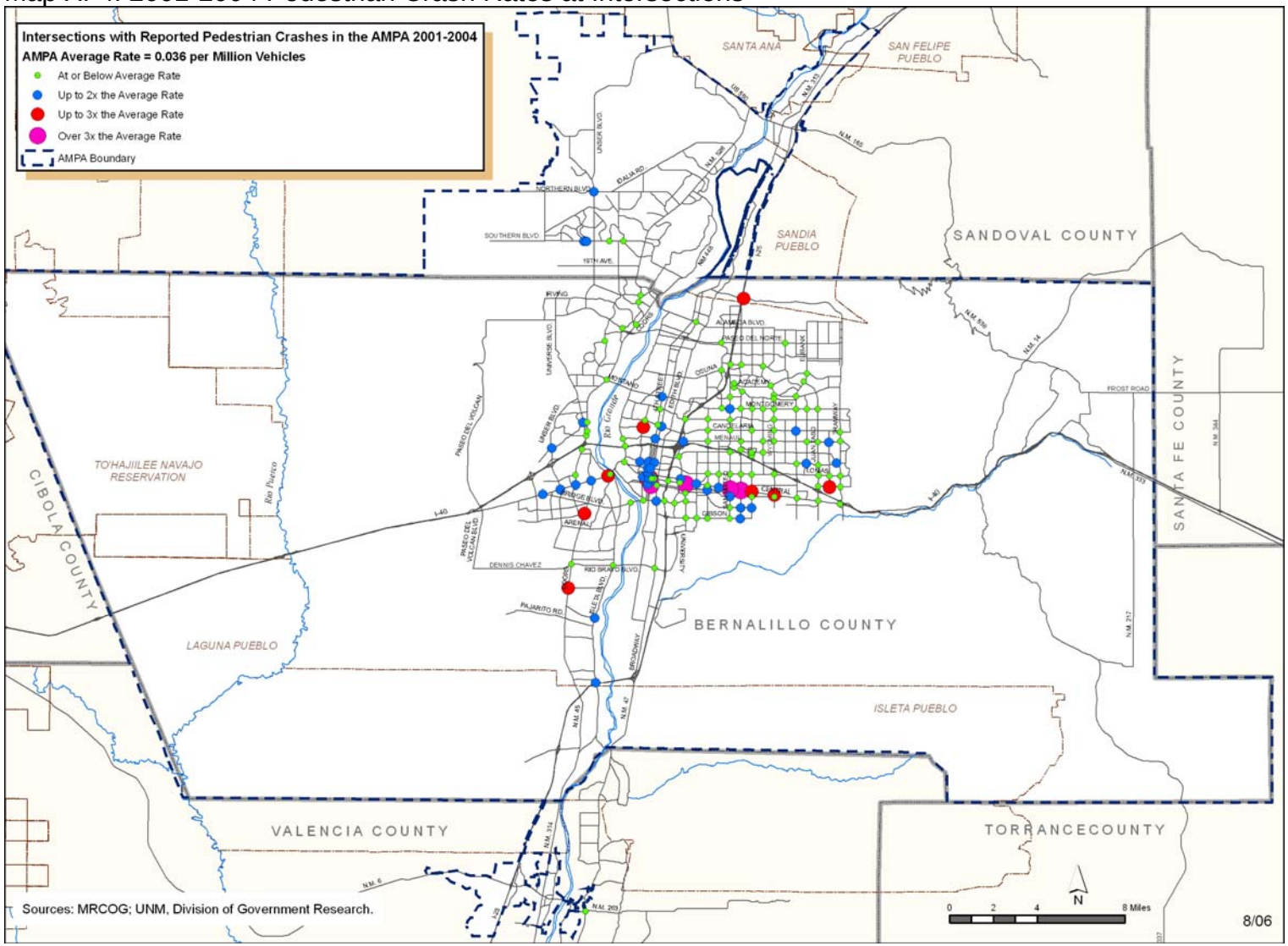
Pedestrian crashes concentrate along Central Ave. but are clustered in areas when the analysis is based on crash rates. Map 4 shows crash rates at intersections for the metropolitan planning area. Areas with high crash rates are around UNM campus, downtown Albuquerque, and the area surrounded by Lomas Blvd., Indian School, Juan Tabo, and Tramway.

Table XI-13

	Pedestrian Crash Data for the AMPA 2001-2004		
Top 10 Location (rank by number of crashes)	Pedestrian Crashes	Top 10 Location (rank by crash rate)	Pedestrian Crash Rates
Central Blvd. - San Mateo	14	Central Blvd. – San Pedro.	0.1502

Blvd.			
Central Blvd. – San Pedro	11	Central Ave. – San Mateo Blvd.	0.1402
Montgomery Blvd. – San Mateo Blvd.	9	Central Ave. – Yale	0.1279
Central Blvd. – Louisiana Blvd.	8	Coal – 2nd Street.	0.1094
Central Blvd. – Wyoming Blvd.	7	Sage – Old Coors	0.1014
Central Blvd. – Yale	7	Matthew Blvd. – 12th Street	0.1002
Central Blvd. – Pennsylvania	6	Tramway Rd. – Tramway East ramp.	0.0971
Central Blvd. – Atrisco	5	Central Ave. – Louisiana Blvd.	0.0958
Central Blvd. – Coors Blvd.	5	Gun Club. – Coors Blvd.	0.0932
Highland Ave. – San Mateo Blvd.	5	Copper Ave. – 3rd Street.	0.0923

Map XI-4: 2001-2004 Pedestrian Crash Rates at Intersections



Truck Crashes

Truck crash is categorized as “Heavy Truck Involvement” in the NMTSB database.

Table XI-14

Heavy Truck Crash Data By Severity for AMPA

	2001	2002	2003	2004	2001-2004
Fatalities	5	5	5	2	17
Injuries	137	107	126	134	504
Property Damages	521	365	384	445	1715
Total	663	477	515	581	2236

Table XI-14

AM Heavy Truck Crash Data By Severity for AMPA

	2001	2002	2003	2004	2001-2004
Fatalities	1	3	1	0	5
Injuries	28	25	37	41	131
Property Damages	112	79	115	107	413
Total	141	107	153	148	548

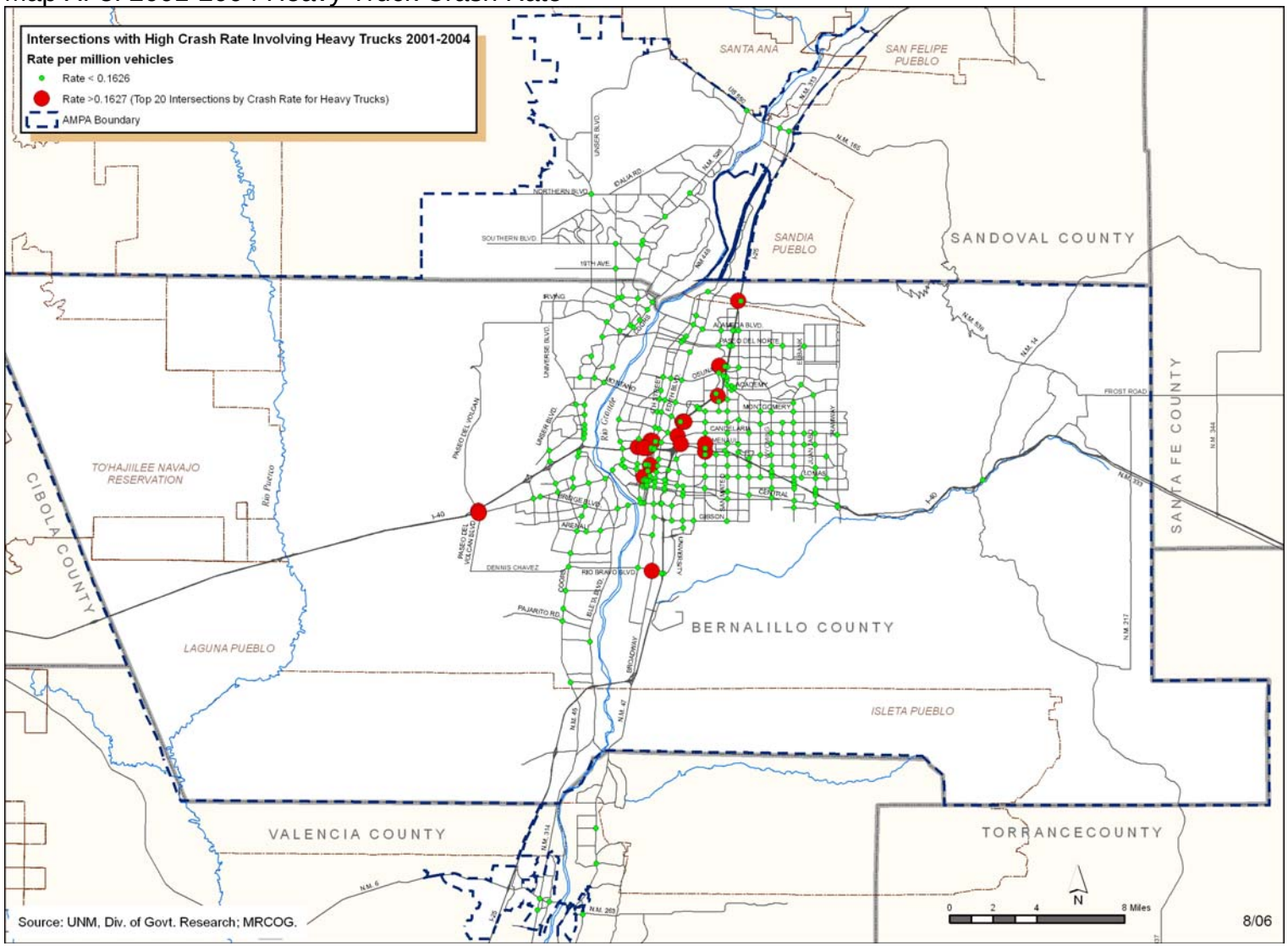
Table XI-15

PM Heavy Truck Crash Data By Severity for AMPA

	2001	2002	2003	2004	2001-2004
Fatalities	2	0	1	0	3
Injuries	33	30	32	38	133
Property Damages	113	86	83	97	379
Total	148	116	116	135	515

Map 5 shows intersection with high crash rates involving Heavy Trucks. The map also highlights the top 20 location with the highest crash rates. This information is relevant when identifying safety strategies that target high priority areas.

Map XI-5: 2001-2004 Heavy Truck Crash Rate



Transit Safety

The following information regarding transit safety has been provided mainly by ABQRide. This is the transit provider for the City of Albuquerque and some areas of Bernalillo County. Table 16 shows "accidents," and "incidents". Incidents may include very minor accidents - the definition is based on a dollar amount of damage. Incidents also include other events that disrupt service, like unruly passengers, or someone twisting their ankle. It also includes any event that result in someone being transported for medical attention, ABQRide reports that most of the accidents have no injuries. The records are kept from July to June of the following year rather than calendar years (January to December).

Table XI-16

		Incidents			Accidents			All Events	
Year	Events	Hour Lost	Miles Lost	Events	Hours Lost	Miles Lost	Events	Hours Lost	Miles Lost
2001	276			175			451		
2002	388			247			635		
2003									
2004									
2005	76	69:23	1137.88	121	133:00	2181.19	197	202:23	3319.07
2006	75	69:15	1111.87	129	156:14	2521.52	204	225.29	3633.39

Commuter Rail Safety

The New Mexico Rail Runner Express (NMRX) has prepared a “Passenger Train Emergency Preparedness Plan” to comply with federal regulations at 49 CFR 239.[2] This plan is intended to meet all federal requirements designed to prevent, prepare, mitigate, respond to and recover from an emergency involving or affecting the operation of the commuter rail services. The Plan was approved by all relevant participants to the Plan on June, 2006. The New Mexico Rail Runner Express (NMRX), Herzog Transit Services, Inc. (HTSI), and BNSF Rail Company were the relevant partners in developing the plan.

The plan outlines regulatory responsibilities and response procedures to be followed when an emergency occurs. Emergency scenarios may include: passenger or employee totality, derailment or collision, evacuation of a passenger train, fatality at a grade crossing, security situation (e.g., bomb threat, tampering, hostage situation, suspicious package or substance, Improvised Explosive Devise - IED’s), storm or other natural events (earthquake, washout, or high winds), release of hazardous materials

[2] The Passenger Train Emergency Preparedness rule was promulgated by the Federal Railroad Administration (FRA). Additional FRA emergency preparedness requirements are contained in CFR Sections 220.13, Reporting Emergencies and 220.47, Emergency Radio Transmissions; 223.9(d), emergency window marking; and Part 238: emergency window exit, lighting, doors, communication, and exit/access marking.

along or adjacent to the right-of-way, fires, on-board or burning on or adjacent to the right-of-way.

In addition, the Mid-Region Council of Governments (MRCOG) has implemented a series of initiatives to address safety concerns. The initiatives are directed to educate future riders of all ages and to encourage open communication with local residents and businesses located near Tail Runner tracks. Some of the implemented initiatives include visit to businesses in the vicinity of stations, distribution of Rail Runner schedules, fate facts, and address questions and concerns regarding the Rail Runner.

Operation Lifesaver is a nationwide, non-profit, public awareness program with mission is to end collisions, fatalities, and injuries at highway rail grade crossings and on railroad property. Rail Runner staff are certified patio lifesaver presenters and working in disseminating the safety message. Youth Safety Presentation is another safety program implemented that targets school-aged children and teens. Schools located near railroad tracks are a specially target.

Future safety initiatives considered include new Rail Runner safety pamphlets for adults and children, television and radio commercials, public and news media events, key chains and other items with reflectors on them, special safety incentives for passengers, and the creation of a safety month dedicated to safety issues and outreach.

Equestrian Safety

Equestrian is an important activity in the AMPA. The equestrian map in Appendix F is a first effort by MRCOCG in identifying where this activity occurs. For safety purposes, the identification of potential locations of safety concerns regarding equestrian and other modes of transportation, it's very important. Potential safety conflict at equestrian access pints as well as potential conflict locations between equestrian activity and other modes of transportation such as bridges, equestrian trail crossings, rail road crossings, motorized and non-motorized traffic are some situations to be aware of. The safety of all user of the transportation system can be affected directly or indirectly by the way the system function.